

## **A Study of Corrosion on Discovered Iron Objects of Bukan Excavation**

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**Abstract:** During the excavations of Tappeh Ghalaychi near the city of Bukan in west Azerbaijan province, a number of iron and bronze objects were found that are belonged to the 8th century B.C. The corrosion of iron objects were studied after chemical analysis. As these objects have a very high cultural value, chemical analysis by using destructive methods is not possible, therefore scanning electron microscope with energy dispersive X-ray microanalysis (SEM-EDX), which allows analysis without any damaging the objects, was used. Likewise for analyzing the corrosion area of the metal objects, Fourier transform infrared (FT-IR) spectroscopy and X-ray diffraction (XRD) were also used. The results of this research showed that a layer of magnetite which is covered with a layer of hematite exists at the surface of the iron objects. In addition, wuestite and goethite were identified in the corrosion products layers.